

## REMARKS

### Rejection under 35 U.S.C. 103

Claims 11 and 13-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No. 6,034,976 to Mossberg in view of U.S. patent No. 6,233,080 to Brenner; and claim 12 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Mossberg in view of Brenner and further in view of U.S. patent No. 4,768,852 to Ih. The Applicants respectfully disagree.

#### Claim 11

The Examiner opines that Mossberg shows, in particular in Fig. 1 and Col. 2, lines 49-57, *"a method of enhancing the modulation bandwidth of a laser, the laser having a operating frequency and having an output and an input"*; comprising tapping the output from the laser to define a *"tapped optical signal"*; shifting the tapped optical signal to define a *"shifted optical signal"*; and *"feeding the shifted optical signal back into the input of the laser"*, as recited in claim 11. Applicants disagree with the Examiner.

Applicants note that Mossberg relates (see Fig. 1 and col. 2, lines 49-57) to a system wherein *"a laser 1, the frequency of which is to be controlled, produces a laser beam 2. A first beam splitter 3 extracts a portion of the laser beam as the output from the apparatus. (As used herein, the term laser is intended in a generic sense, covering a wide scope of coherent radiation sources.) The laser beam 2 is subsequently split by a beam-deflecting acousto-optic modulator ("AOM") 4 into a first deflected, frequency-shifted beam portion 5 and a second undeflected beam portion 6"*.

Applicants note that the frequency-shifted beam portion 5 is not fed back into an input of the laser 1 of Mossberg. On the contrary, the frequency-shifted beam portion 5 is combined with undeflected beam portion 6 in an interferometer (9, 10, 11), which outputs a processed beam 13. Applicants respectfully note that since Mossberg does not disclose feeding back the frequency-shifted beam portion 5 into an input of the laser, Mossberg cannot be deemed to disclose a method comprising *"feeding the shifted optical signal back into the input of the distributed feedback laser"* as recited in claim 11.

Applicants note that even the processed beam 13 is not fed back into an input of the laser 1 of Mossberg. On the contrary, the processed beam ends up in an opto-

electrical photo-detector 14 that generates electrical signals. The electrical signals generated by the photodetector 14 are processed by an electrical bandpass filter 15, an electrical phase-locked loop 16, and integration electronics 17, to produce electrical signals for controlling the laser 1 through electromechanical devices 18 such as piezo-electrically actuated cavity mirror or other known electro-mechanical control structures (col. 3, lines 24-56). Applicants respectfully submit that one skilled in the art readily understands that transforming an optical signal to an electrical signal, and then transforming said electrical signal in mechanical signal acting on a laser cavity differs fundamentally from feeding an optical signal in a laser input. Applicants further note that Mossberg does not seem to disclose or suggest feeding any optical signal into an input of the laser 1. In view of the above, applicants respectfully submit that Mossberg cannot be deemed to disclose or suggest a method comprising "*feeding the shifted optical signal back into the input of the laser*", as recited in claim 11.

Applicants note that the Examiner has failed to show that Brenner discloses or suggests a method comprising "*feeding the shifted optical signal back into the input of the laser*". Accordingly, applicants respectfully submit that the Examiner has failed to show that any combination of Mossberg and Brenner would have led one skilled in the art to a method as recited in claim 11, and in particular comprising "*feeding the shifted optical signal back into the input of the laser*". At least in view of the above, claim 11 is patentable over Mossberg in view of Brenner.

#### Claims 13-14

Claims 13 and 14 depend directly or indirectly on claim 11. Applicants respectfully submit that at least in view of their dependency on claim 11, claims 13-14 are patentable over Mossberg in view of Brenner.

#### Claim 12

Applicants note that the Examiner has failed to show that Ih discloses or suggests a method comprising "*feeding the shifted optical signal back into the input of the laser*".

Accordingly, applicants respectfully submit that the Examiner has failed to show that any combination of Mossberg, Brenner and Ih would have led one skilled in the art to a method as recited in claim 11, and in particular comprising "*feeding the shifted optical signal back into the input of the laser*". At least in view of the above, claim 11 is patentable over Mossberg in view of Brenner and Ih.

Allowable subject matter

Applicants acknowledge with gratitude the indicated allowability of claims 15-18 if claims 15-18 were rewritten in independent form, and the allowance of claims 1-10 and 19-34. However, Applicants note that claims 15-18 depend directly or indirectly on claim 11, and respectfully submit that the above arguments concerning the patentability of claim 11 make it apparent that there is no need to convert claims 15-18 to independent format.

\* \* \*

In view of the above, the Applicants submit that the application is now in condition for allowance and respectfully urges the Examiner to pass this case to issue.

The Commissioner is authorized to charge any additional fees that may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed

and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being deposited with the United States Post Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

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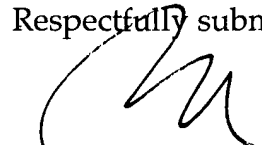
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Enclosures: - postcard

Respectfully submitted,

  
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